

Hot Mix Asphalt Plants Air Emission Regulation in Maine

A Briefing for Natural Resources Committee

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James Brooks

Bureau of Air Quality, Maine DEP

Hot Mix Asphalt Plants

Air Emission Regulation in Maine



- **Industry Description**
- **License Requirements**
- **Compliance Inspections, Emission Tests and Enforcement**

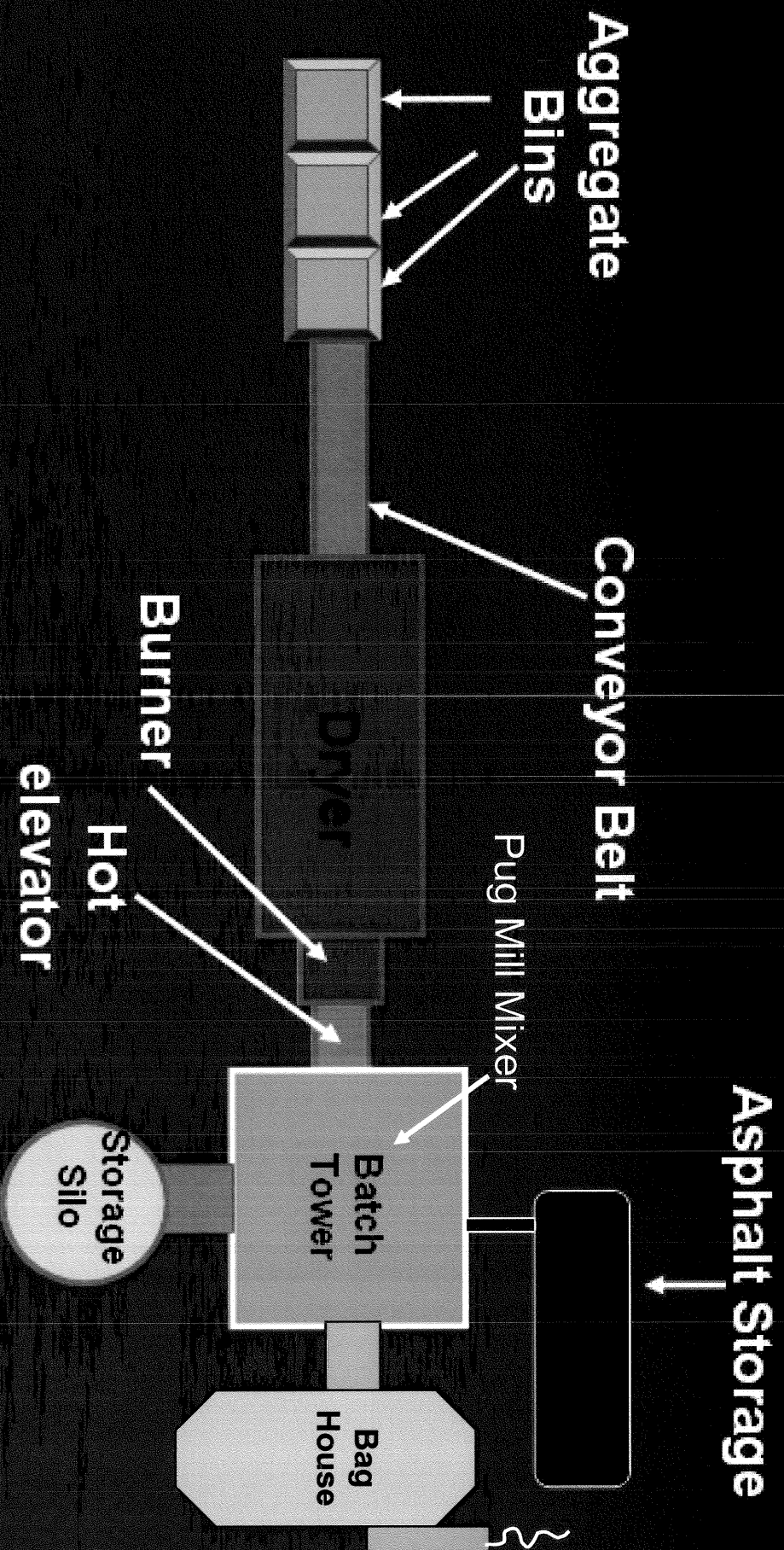


Hot Mix Asphalt Plants

Plant Description

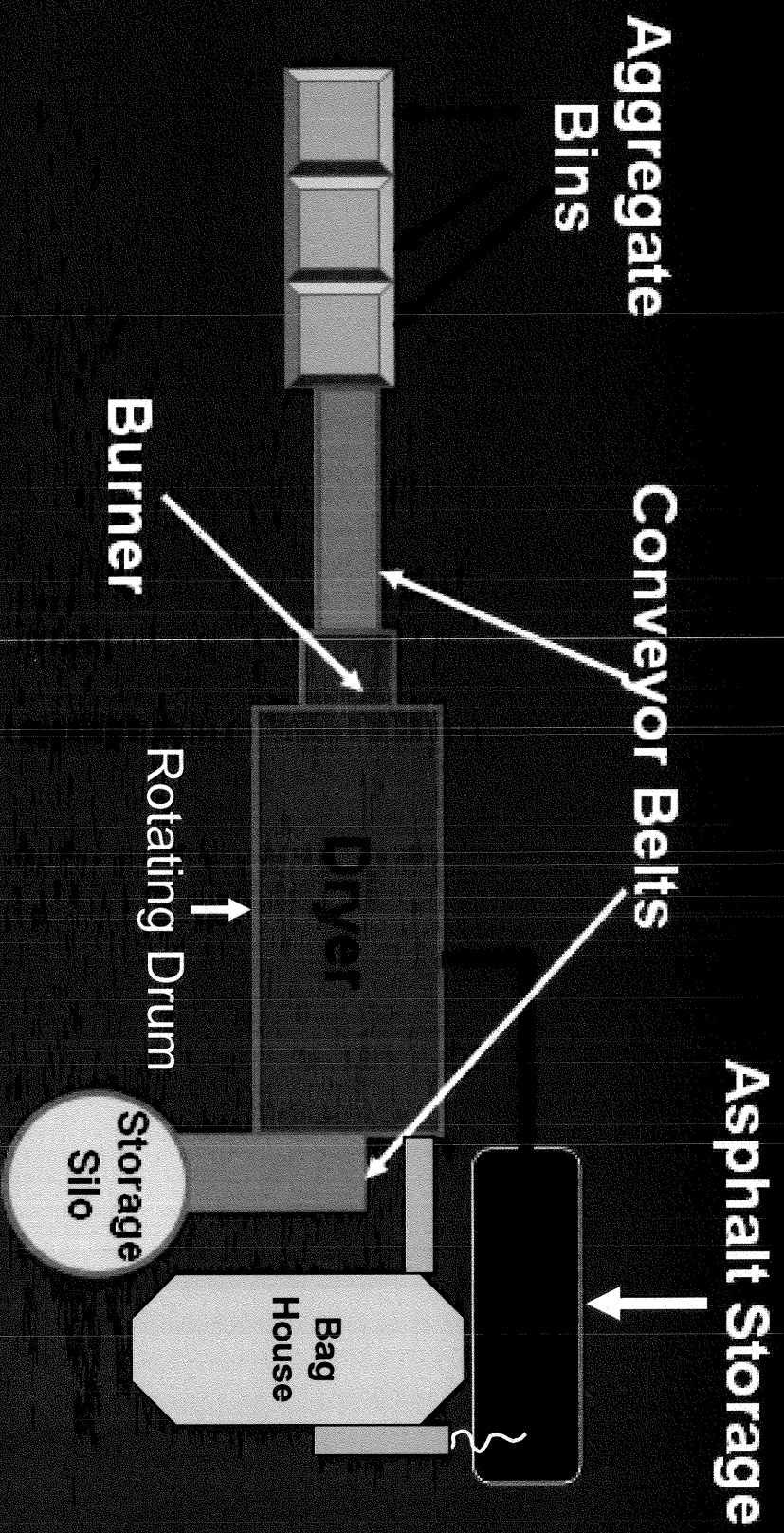
- Hot mix asphalt (HMA) is used primarily as paving material
- Mixture of aggregate and liquid asphalt cement
- Heated and mixed in measured quantities
- Batch mix plant
 - the aggregate is dried first, then transferred to a mixer where liquid asphalt cement is added
- Drum mix plant
 - a rotary dryer serves to dry the aggregate and mix it with the liquid asphalt cement

Batch plant typical layout

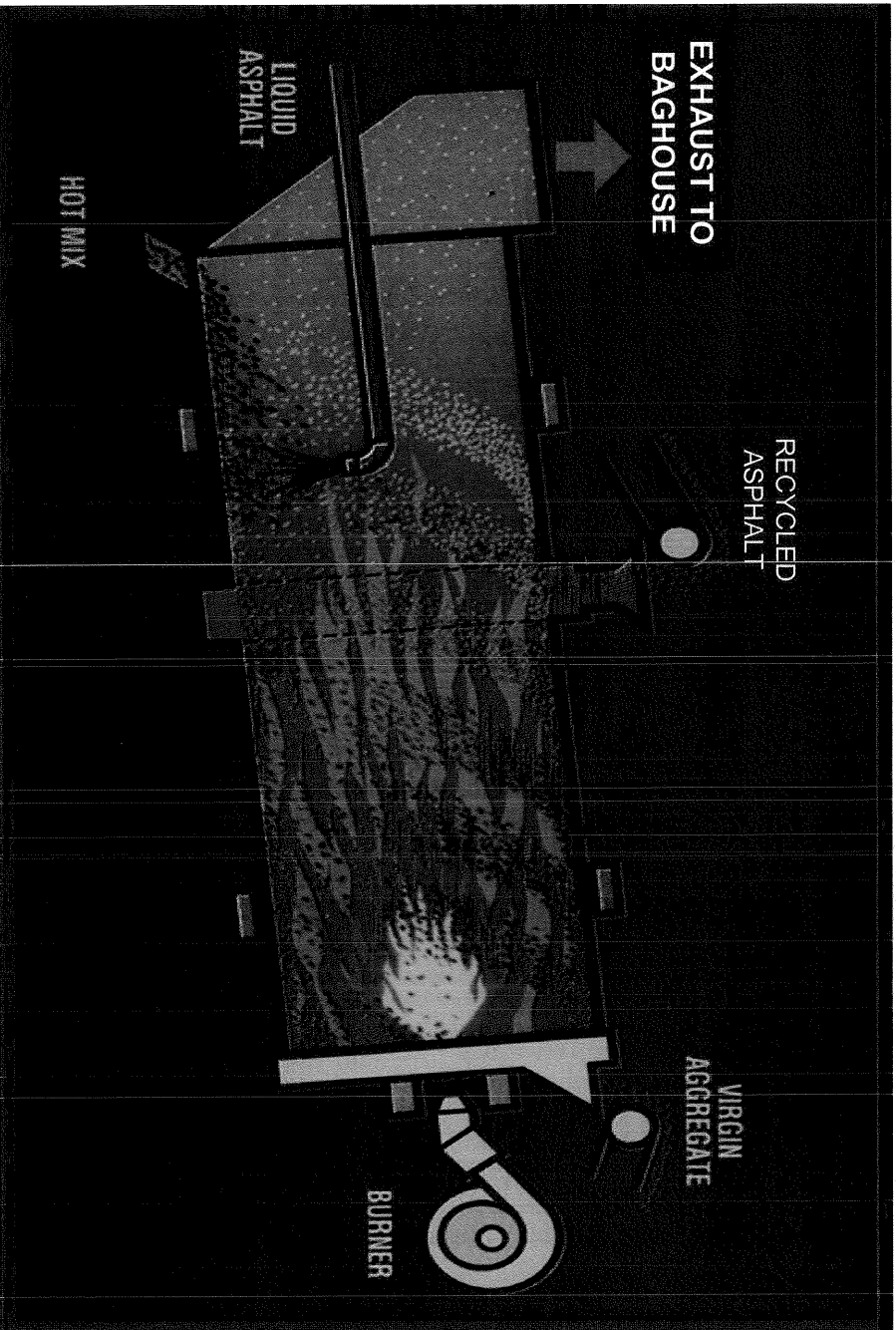


Drum Mixer Plant

typical layout



Hot Mix Asphalt Plants Drum Dry Mixer





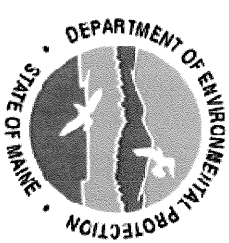
Liquid Asphalt Composition

- Dark brown to black, highly viscous, hydrocarbon produced from petroleum distillation residue
- Can contain traces of H_2S
- Final mixture:
 - 5% - 10% liquid asphalt
 - 95% - 90% aggregate

Hot Mix Asphalt Plants Associated Equipment



- Boiler to heat asphalt emulsion
- Generator to supply electricity (sometimes)
- Rock crushing facility (sometimes)
- Delivery trucks (not under DEP license jurisdiction)
- Other permits associated with facility depending on location
 - DEP Mining Permit
 - DEP Storm Water Permit
 - DEP Site Location of Development

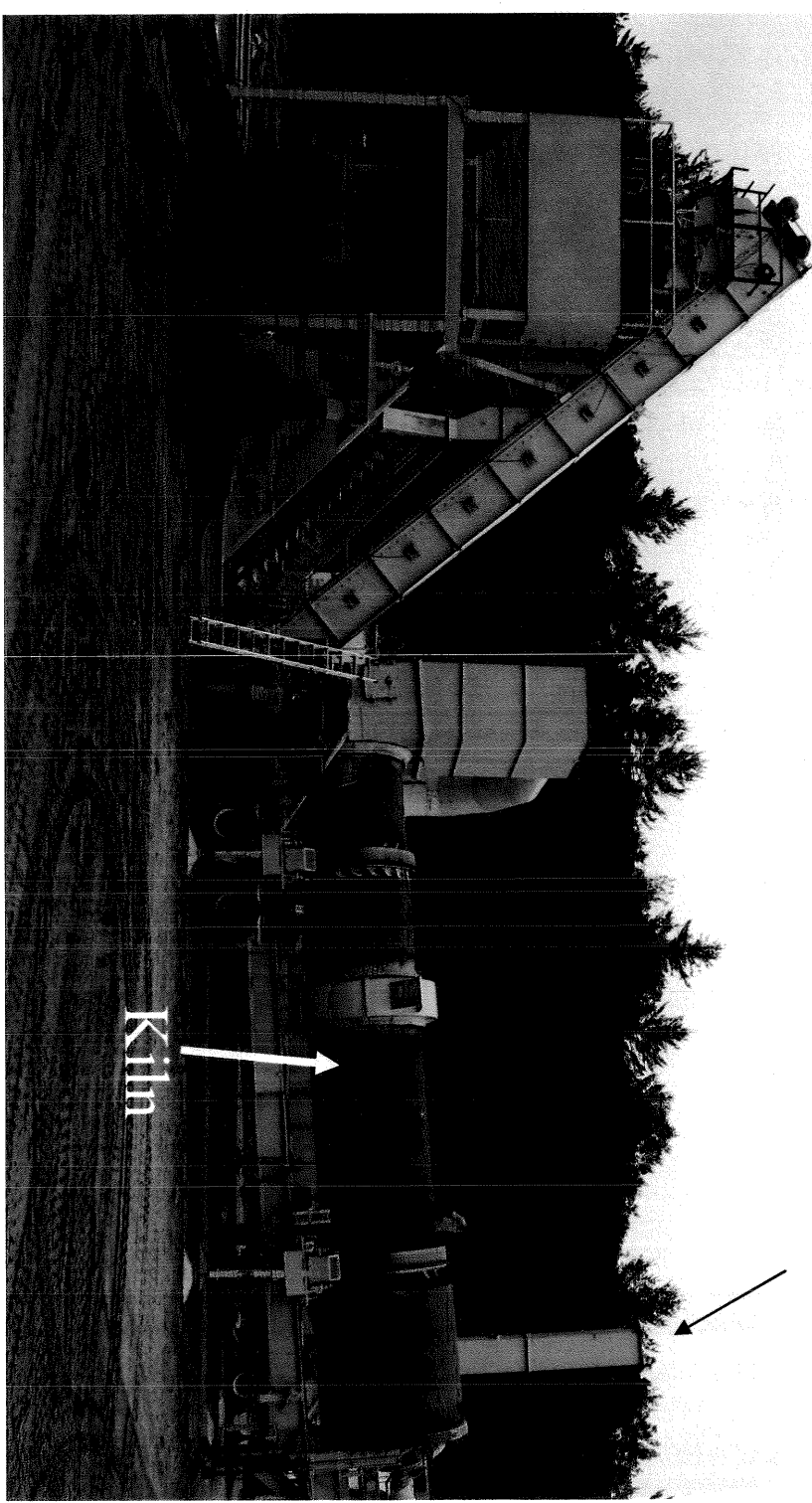


Typical Drum Mix Plant

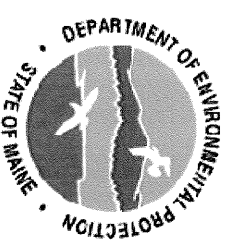
Horizontal bag house is
behind kiln

Bag house
stack

Kiln



Hot Mix Asphalt Plants Licensing Process



- Complete and submit application form for air emissions license
- Subject to DEP Chapter 115
 - Major and Minor Source Air Emission License Regulations
- EPA New Source Performance Standards
 - Standards of Performance for Hot Mix Asphalt Facilities
- Complete Best Available Control Technology (BACT) analysis
- Term of license is 5 years

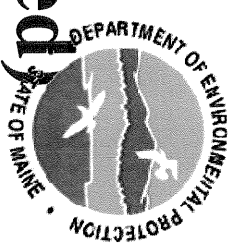
Hot Mix Asphalt Plants

Specific Licensing Conditions



- Emissions from the hot mix asphalt (HMA) plant shall vent to a baghouse.
- All components of the asphalt plant shall be maintained so as to prevent PM leaks.
- Maine particulate standard for asphalt plant is stricter than EPA
 - ME = 0.03 grains/dry standard cu. ft. (grs/dscf)
 - EPA = 0.04 grs/dscf (NSPS)
- The HMA plant will document maintenance of the baghouse and keep an on-site log recording the date and location of all bag failures.
- HMA facilities are required to meet pound per hour (lb/hr) emission limits for PM, SO₂, NO_x, CO, and VOC.

Hot Mix Asphalt Plants

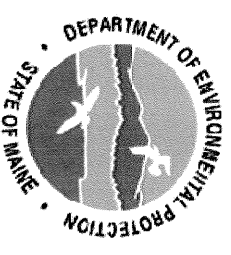


Specific Licensing Conditions (continued)

- Baghouse must be monitored by either a PM detector or personnel with a current EPA Method 9 visible emission certification.
- Opacity from general process emissions and the asphalt plant baghouse shall not to exceed 20%.
- Maximum facility-wide fuel use and sulfur content limits.
- For portable plants, licensee must notify DEP and municipality 5 days prior to move.

Hot Mix Asphalt Plants

Compliance Monitoring



- **Inspections**
 - Conducted to ensure that facilities are in compliance with license conditions
 - Un-announced or pre-announced depending on objective
 - Review records and logs
 - Maintenance log, fuel use and quality.
 - Visible observation of opacity of emissions
 - Baghouse, yard, stockpiles
 - Average is inspection once / 3 yrs
 - More frequent for “problem facilities”
 - Respond to complaints within 24 hrs.

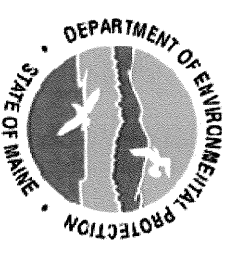
Hot Mix Asphalt Plants Emission Test



- New HMA facilities must test emission within 180 days after start up for new facilities
- Use EPA test method for particulate matter (PM)
- Licensee hires and pays for test firm
- DEP staff monitors most tests
- Failure to meet emission limit results in enforcement

Hot Mix Asphalt Plants

Emission Test



- 6 Facility emission tests since 2000
 - Emission Limit: 0.03 gr/dscf
 - 5 test in compliance: 0.001 – 0.023 gr/dscf
 - 1 test in violation: 0.1 gr/dscf
 - Enforcement followed test failure

Hot Mix Asphalt Plants

Compliance and Enforcement in 2009



- 51 licensed asphalt facilities in Maine
 - 17 Inspections/Opacity Observations
 - 4 Letters of Warning or Notices of Violation
 - 1 Consent Agreement (Rock crusher opacity violation)
 - 3 Emission Tests (all passed)
- Typical problems
 - Incomplete or absent logs
 - Fugitive emissions from yard and stock piles
- Less frequent problems
 - High opacity from baghouse, boiler or generator